

OPERATOR'S MANUAL

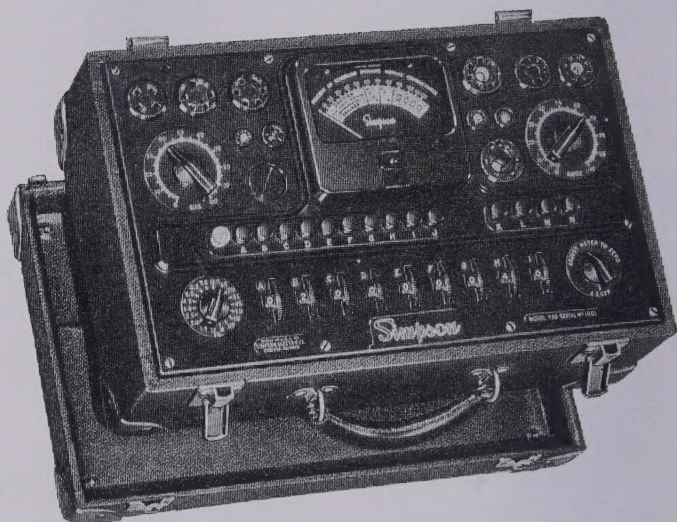
**MODEL 330
and MODEL 330-RC
TUBE TESTER**

STABRO LABORATORIES, INC.
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DOCUMENT CONTROL ADMINISTRATOR

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Simpson Model 330 Tube Tester
Size: 15½" x 9½" x 6¼". Weight: 16 lbs.

Foreword

The Simpson Model 330RC tests tubes in terms of percentage of rated dynamic mutual conductance—a comparison of the tube under test against the standard rated micromho value of that tube. It tests tubes with voltage applied automatically over the entire operating range, reproducing more completely than ever before the actual conditions under which a tube functions in a radio receiver. The colored zones on the dial coincide with the micromho rating or the percent of mutual conductance, indicating that the tube is good, fair, doubtful, or definitely bad. Thus you check against manufacturers' ratings.

Equally revolutionary is the switching arrangement. The circuit is so arranged that, even though numerous combinations are possible, very few switches require moving to test any one tube. Many popular tubes are tested in the "normal" position without moving any of the nine circuit switches. Only a few settings of the rotary and push button switches are necessary for the most complicated tube.

When you have finished a test, just press the Automatic Reset button and instantly all switches, both push button and rotary, return to normal automatically. This not only saves time but prevents the possibility of error due to previous settings being left in position at the beginning of the new test. The Reset mechanism, in whose design and tooling many thousands of dollars have been invested, is Simpson patented.

On the Model 330RC, the "No-Backlash" Roll Chart prevents the chart from being torn or from getting out of alignment by automatically keeping chart in constant tension. This gives precision selection at all times. If you will remove the Roll

Chart unit you will see the very superior Simpson construction throughout. It is, beyond question, the finest roll chart mechanism, in design and in quality manufacture, on any tube tester today.

When you purchase Simpson test equipment you get equipment made almost entirely within the various plants of our Company. We are by far more self-contained than any other manufacturer of test equipment. This is your assurance that testers we offer will not quickly become obsolete. Our tremendous investment in expensive production tools is your safe-guard against obsolescence and further assurance of unvarying quality.

Here at Simpson we do not regard our job finished when we have sold an instrument. Our interest in your Model 330 or 330RC never ceases. We want your satisfaction with it to be continuing. That is the reason for this Operator's Manual. We want you to know how to get the most from your tube-tester.

We have made this instrument as rugged as we know how. Give it the care and careful handling it deserves and it will give you a lifetime of accurate, dependable service.

OPERATOR'S MANUAL

SIMPSON MODEL 330 AND MODEL 330-RC TUBE TESTER

The Model 330 tube tester has been designed to measure the mutual conductance of amplifier tubes in the percentage of published standard ratings. This is the final quantity involved in the appraisal of amplifier tube condition.

In addition to the percentage scale, the dial is arranged in four English reading sections—Good, Fair, Weak and a "Danger Zone."

Exhaustive tests have shown that tubes above 85% of their rated mutual conductance give good performance, while those between 70% and 85% are only fair, tubes falling between 55% and 70% will still operate but with poor results, and those below 55% may cause serious distortion, lack of sensitivity or even damage to associated equipment if the tube is continued in service.

The Model 330 circuit has been set up in such a manner as to minimize the number of operations necessary to test the most popular tubes, yet maintaining maximum flexibility for the more complicated types and to provide adequate switching facilities for future tubes.

The meter in this tester is of the right hand suppressed zero type. When the tester is turned off, the pointer rests against the stop on the right hand side.

The TUBE column of the chart lists the tube and, on multisection tubes, the section being tested.

The FIL. column refers to the filament switch (lower left) which has 17 voltage positions and a "special" (S) position used on some cold cathode tubes such as OZ4.

The BIAS column refers to the bias adjustment (upper left) through which the proper bias is applied to the grid of the tube under test.

The RANGE column refers to the range adjustment (upper right). This control, in conjunction with push buttons K and L,

adjusts the meter circuit to a point where 100% conforms to the standard published value of mutual conductance for the tube under test.

The SELECTORS column refers to the nine rotary selector switches A to I (lower center), each of which is associated with a tube socket contact. Listings in this column indicate the switch and its position—i.e., C1-D3 means that switch C is rotated to position 1 and switch D is rotated to position 3.

It is important that all switches NOT shown in the selector column remain in their NORMAL or Zero (0) position. All selector switches return to zero position when the RESET (white) push button is pressed.

The SHORTS column (under PUSH BUTTONS) refers to the push buttons A to I, each of which is associated with a tube socket contact. To test for shorts or leakage, each button in the SHORTS column is successively pressed while lightly tapping the tube. Shorted or leaking elements will cause the neon lamp (upper right) to glow. The shorts indicator will sometimes glow when tubes such as 0Z4, 0Y4, 117N7, VR tubes and Thyratrons are tested for quality. Disregard any glow caused by buttons NOT appearing in the SHORTS column. A single flash caused by the condenser charge while switching is also to be disregarded.

The QUALITY column (under PUSH BUTTONS) refers to all push buttons A to N. In the quality test, push buttons A to I are the plate circuit selectors, buttons K and L are load selectors, button M controls the plate, screen and grid voltage supply and button N switches the meter from line test to tube test.

CKM-N in the quality column means: (a) Press buttons C, K and M; (b) Adjust meter to zero (line adjustment); (c) Press button N and observe meter reading for the tube condition. When button N is released, buttons K, L and M automatically return to the open position to prevent the possibility of the wrong load being applied on subsequent tests.

The proper procedure for testing tubes is as follows: Set FIL., BIAS, RANGE and SELECTORS as listed in the tube chart. Insert the tube in its proper socket and allow time to heat. Test

for shorts or leakage by pressing each push-button shown in the SHORTS column while lightly tapping the tube and observing the neon lamp. To test for quality; (a) Press each push button shown in the QUALITY column except N; (b) Adjust meter to zero (line adjustment); (c) Press push button N and read the tube condition on the meter.

For tubes requiring a second test, proceed as follows: If ditto marks appear in the BIAS, RANGE or SELECTOR columns, leave such controls and switches as they were for the first test. If changes or additions are indicated, set them accordingly. For example:

TUBE	FIL.	BIAS	RANGE	SELECTORS	SHORTS	QUALITY
7B8 MIX	6.3	12	41	D2-F1-G2	CDEFGH	CKLM-N
7B8 OSC	"	17	36	D0-F1-G2-E4		DKM-N

Leave FIL. set at 6.3, change BIAS to 17, change RANGE to 36, change selector D2 to D0, leave selectors F1 and G2 as they were for the first test and add selector E4.

All short tests were made in the first test and none are required for the second test.

Press the push-buttons shown in the QUALITY column opposite the second test.

If a third test is required, proceed as for the second test.

After the tube is completely tested and removed from the socket, press the RESET button (white button, extreme left). All push buttons and rotary selector switches will return to the NORMAL position.

An asterisk (*) appearing before a tube number indicates that the "Special" grid lead is used. The "Special" lead is plugged into the center contact of the 7 pin miniature socket and clipped to the tube top cap.

DIODES and RECTIFIERS: Due to the wide variations permitted in diodes and rectifiers, the settings for these tubes have been arranged so that the meter indication, in many cases, will be near the top of the scale.

CONDENSED INSTRUCTIONS

1. Set FIL. (filament switch) according to chart.
2. Set BIAS adjustment according to chart.
3. Set RANGE adjustment according to chart.
4. Set rotary SELECTORS, A to I, according to chart.
5. Insert tube in socket and allow time to heat.
6. Press each button shown in SHORTS column while tapping tube lightly. Steady or intermittent glow of the neon lamp indicates a short or leakage. Disregard a single flash while switching or a glow caused by buttons NOT appearing in the SHORTS column.
7. Press each button shown in the QUALITY column, except N.
8. Adjust meter to zero (line adjustment).
9. Press button N and observe tube condition on the meter.
For tubes requiring a second test, proceed as follows:
10. If ditto marks appear in the BIAS, RANGE or SELECTOR columns, leave such controls and switches as they were for the first test. If changes or additions are indicated, set them accordingly.
11. Press each button shown in QUALITY column and observe tube condition.
12. If the tube requires a third test, proceed as for the second.

After the tube has been completely tested and removed from the socket, press the RESET button (white) returning selectors to NORMAL position ready for the next tube.

ROLL CHART INSTRUCTIONS (MODEL 330-RC)

To remove old chart:

1. Wind entire chart to the upper roller.
2. Place the mechanism on its side with the panel toward you and the knob to the right.
3. Loosen tape from bottom roller and pull old chart from the mechanism.

To install new chart:

1. Turn mechanism upside down with knob to the right. Place new chart, printed side down, on opposite side of mechanism and feed the end of the chart between the guard plate and the panel, then around the roller nearest the panel and out the other side. Place mechanism on its side with the panel away from you and the knob to the right.
2. Remove the covering from the scotch tape attached to the chart and attach to the top roller. Be sure to center paper between the two end discs before attaching. Smooth tape out by rubbing with the fingers and press firmly to the roller. With the mechanism in the same position, roll the chart onto the top roller until the end of the chart is even with the front panel.
3. While holding the end of the paper tightly, revolve the knob until the paper is wound tight on the roller. While holding the knob, pull the end of the chart toward you about even with the center of the bottom roller and hold in this position by pressing against the top roller.

Revolve the bottom roller a few turns toward the paper until it runs back against its spring tension, then wind it ten complete turns toward the paper and hold in this position.

4. Remove the covering from the scotch tape and attach to the bottom roller, being sure to center the paper between the end discs of the roller. Smooth out tape and press firmly to roller.
5. If the paper is either too tight or too loose, the tape may be pulled away from the roller and the tension adjusted as desired.

MP MASTER



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